

IN THE SPECIFICATION:

Please replace paragraph [0029] with the following amended paragraph:

[0029] Figures 3A-C illustrate one embodiment of the alternating chemisorption of monolayers of a tantalum containing compound and a nitrogen containing compound on an exemplary portion of substrate 300 in a stage of integrated circuit fabrication, and more particularly at a stage of barrier layer formation. In Figure 3A, a monolayer of a tantalum containing compound is chemisorbed on the substrate 300 by introducing a pulse of the tantalum containing compound 305 into a process chamber, such as a process chamber shown in Figure 1. It is believed that the chemisorption processes used to absorb the monolayer of the tantalum containing compound 305 are self-limiting in that only one monolayer may be chemisorbed onto the surface of the substrate 300 during a given pulse because the surface of the substrate has a finite number of sites for chemisorbing the tantalum containing compound. Once the finite number of sites are is occupied by the tantalum containing compound 305, further ~~chemisorption~~ chemisorption of any tantalum containing compound will be blocked.

Please replace paragraph [0031] with the following amended paragraph:

[0031] The tantalum containing compounds may be other organo-metallic precursors or derivatives thereof such as, but not limited to pentaethylmethylamino-tantalum (PEMAT; $\text{Ta}(\text{N}(\text{Et})\text{Me})_5$ $\text{Ta}(\text{N}(\text{C}_2\text{H}_5\text{CH}_3)_5)$), pentadiethylamino-tantalum (PDEAT; $\text{Ta}(\text{NEt}_2)_5$), and any and all of derivatives of PEMAT, PDEAT, or PDMAT. Other tantalum containing compounds include without limitation TBTDET ($\text{Ta}(\text{NEt}_2)_3\text{NC}_4\text{H}_9$ or $\text{C}_{16}\text{H}_{39}\text{N}_4\text{Ta}$) and tantalum halides, for example TaX_5 where X is fluorine (F), bromine (Br) or chlorine (Cl), and derivatives thereof.

Please replace paragraph [0034] with the following amended paragraph:

[0034] Referring to Figure 3B, after the process chamber has been purged, a pulse of a nitrogen containing compound 325 is introduced into the process chamber. The nitrogen containing compound 325 may be provided alone or may be provided with the aid of a carrier gas. The nitrogen containing compound 325 may comprise nitrogen atoms 330 with one or more reactive species 335. The nitrogen containing compound preferably comprises ammonia gas (NH_3). Other nitrogen containing compounds may be used which include, but are not limited to, N_xH_y with x and y being integers (e.g., hydrazine (N_2H_4)), dimethyl hydrazine (~~$((\text{CH}_3)_2\text{N}_2\text{H}_2)$~~ $((\text{CH}_3)_2\text{N}_2\text{H}_2)$, t-butylhydrazine ($\text{C}_4\text{H}_9\text{N}_2\text{H}_3$) phenylhydrazine ($\text{C}_6\text{H}_5\text{N}_2\text{H}_3$), other hydrazine derivatives, a nitrogen plasma source (e.g., N_2 , N_2/H_2 , NH_3 , or a N_2H_4 plasma), 2,2'-azoisobutane ($((\text{CH}_3)_6\text{C}_2\text{N}_2)$), ethylazide ($\text{C}_2\text{H}_5\text{N}_3$), and other suitable gases. A carrier gas may be used to deliver the nitrogen containing compound if necessary.